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(54) BORON CARBIDE PARTS FOR PLASMA REACTOR

(57)Abstract:
PROBLEM TO BE SOLVED: To prevent corrosion of a chamber by plasma by constituting the wall surfaces and other parts in a plasma reactor of composite constituting bodies formed by coating substrates of an aluminum base with boron carbide.
SOLUTION: Oxide on the aluminum surfaces is removed and the boron carbide is thermally sprayed thereto. The boron carbide is preferably B4C. The annular zone 56 of an upper housing 14 constituting the wall surfaces in the plasma reactor is concealed by a mask and the anodically oxidized coating 54 of the annular zone 56 is removed by grit blasting. The B4C is thermally sprayed to the annular zone 56 and to the side slightly outer than the same to form the B4C layer 58 on the upper housing 14. Since the B4C has resistance to high-density BCl3 plasma, the thickness of the thermal spraying coating suffices with 125 to 250μm. The aluminium is soft and, therefor, the B4C layer 58 adheres securely to the aluminum.